REMARKS

The Office Action objected to the claims. Claim 1-3, 6, 9 and 19-20 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over Application 09/814,355. Claims 1, 3-6, 9-12 14-15 and 18 were rejected under Section 102B as anticipated by Nishiyama (5,790,877). Further, claims 2, 7-8, 13, 16-17 and 19-20 were rejected under Nishiyama and Georgiou (6,047,248).

The Objections

Applicants have amended the claims. Withdrawal of the objection is requested.

The Double Patenting Rejection

A Terminal Disclaimer is submitted herewith. Withdrawal of the rejection is requested.

The Section 102 Rejection

The Office Action asserted that Nishiyama teaches the following claimed items:

1. one or more processing units each having a clock input that controls the performance of the unit with elements 103, 104 and 105 figure 1, at column 2, lines 37-41 and at column 3, lines 43-49;

2. a controller having a plurality of clock outputs each coupled to the clock inputs with CLK CONT 101 of figure 1 and at column 3, lines 43-60;

3. the controller varying the clock frequency of each processing unit to optimize power consumption and processing power for a task at column 2, lines 51-65, at column 3, lines 50-67 and at column 6, lines 8-17.

Per claims 3-6, 9-12, 14-15 and 18:

Nishiyama describes one of the processing unit comprises a RISC processor at column 3, lines 35-42. Nishiyama describes dynamically managing each unit on a per task basis at column 2, lines 37-65 and at column 6, lines 9-18. Nishiyama describes each unit clocked at the lowest rate possible to reduce peak power dissipation or average dissipation at column 2, lines 52-60 and at column 6, lines 9-18. Nishiyama describes the controller generating a plurality of clock signals with figure 2 and independently controlling the rate to each processing unit at column 3, lines 64-67 and at column 4,

lines 21-34. Nishiyama describes the clock rate based on a pre-assigned algorithm optimized for power reduction with the compiler, figures 5 and 6 and at column 4, line 60 - column 5, line 16. Nishiyama describes controlling clock inputs on-the-fly and a centralized controller at column 3, lines 43-67.

Applicant respectfully traverses the rejection. Nishiyama relates to a method for arranging a program to suppress the power consumption by the resources includes the steps of determining which ones of the hardware resources are to be operated and from which instruction cycle to which instruction cycle to execute each instruction of the program; and based on the determination, adding an instruction to lower frequencies of clock signals inputted to the hardware resources and an instruction to restore the frequency at positions adjacent to the beginning and the end of the period during which the hardware resources are not operated and compiling the program. The processor system decodes the compiled program and lowers the frequency of the clock signal inputted to the hardware resources in accordance with the frequency lowering instruction and the frequency restoring instruction detected in the decoding step. The clock signals sent to the hardware resources are stopped by the frequency lowering instruction to the resource of the hardware resources for which the clock frequency may be lowered to zero.

Applicants have amended the claims from processing units to processor units to clarify that the claims relate to a multi-processor system. Nishiyama fails to show the claimed processor units. Here, Nishiyama's clock control circuit 100 controls hardware resources such as register files, ALU and memory. However, at best the resources make up one processor unit. In contrast, as discussed in the specification and the dependent claims, the processor units are entire processors such as RISC processors or DSP processors that can operate stand-alone. Hence, at least the processor units are missing in Nishiyama.

Nishiyama also fails to show a controller having a plurality of clock outputs each coupled to the clock input of each processor unit, the controller varying the clock frequency of each processor unit to optimize power consumption and processing power for a task. As discussed above, Nishiyama shows controlling clocks of registers, ALU and memory, but not of the whole processor in a multiprocessor system.

Since a Section 102 rejection requires that each an every element exists in Nishiyama, and since two elements are missing in Nishiyama, the rejection of claim 1 and those dependent thereon is improper. Withdrawal of the rejection is requested.

The Section 103 Rejection

Claims 2, 7-8, 13, 16-17 and 19-20 were rejected under Nishiyama and Georgiou (6,047,248), which shows a system and method using thermal feedback to cooperatively vary a voltage and frequency of a circuit to control heating while maintaining synchronization. Preferably, on-chip thermal sensors are used for feedback. A system having features of the invention includes: a thermal sensor coupled to the circuit, the thermal sensor generating a temperature signal which is a function of a temperature associated with the functional unit; a temperature decoder having an input and an output, the input coupled to the thermal sensor for decoding the temperature signal; a comparator having one input coupled to the decoder for comparing a decoded temperature signal with a predetermined temperature threshold signal coupled to a second input, the comparator enabling a voltage/clock control signal as a function of the decoded temperature signal and the predetermined temperature threshold; an adjustable voltage regulator coupled to the voltage/clock control signal; and a clock selector coupled to the voltage/clock control signal; wherein the voltage regulator and the clock selector are adapted to cooperatively vary the voltage and the frequency of the circuit to a predetermined voltage-frequency pair, responsive to the voltage/clock control signal.

Here, neither Nishiyama nor Georgiou shows a plurality of processor units, each unit having a clock input that controls the performance of the unit; and a controller having a plurality of clock outputs each coupled to the clock inputs of each processor unit, the controller varying the clock frequency of each processor unit to optimize power consumption and processing power for a task. Hence, claims 1 and dependent claims are patentable over Nishiyama singly or in combination with Georgiou. Withdrawal of the rejection is requested.

For all rejections, there is no basis in the art for combining the references in the manner proposed. Per MPEP Section 2143.01:

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In *In re Kotzab*, the claims were drawn to an injection molding method using a single temperature sensor to control a plurality of flow control valves. The primary reference disclosed a multizone device having multiple sensors, each of which controlled an associated flow control valve, and also taught that one system may be used to control a number of valves. The court found that there was insufficient evidence to show that one system was the same as one sensor. While the control of multiple valves by a single sensor rather than by multiple sensors was a "technologically simple concept," there was no finding "as to the specific understanding or principle within the knowledge of the skilled artisan" that would have provided the motivation to use a single sensor as the system to control more than one valve. 217 F.3d at 1371, 55 USPQ2d at 1318.

In *In re Fine*, the claims were directed to a system for detecting and measuring minute quantities on nitrogen compounds comprising a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector. The primary reference disclosed a system for monitoring sulfur compounds comprising a chromatograph, combustion means, and a detector, and the secondary reference taught nitric oxide detectors. The examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed.

The instant case is similar to *In re Fine* in that the Office Action asserted that it would have been within the skill of the art to combine. In this case, there was no support or explanation of this conclusion and the rejection should be withdrawn.

The combination of references proposed in the Office Action would render the construction of the references impracticable for their intended purposes. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). In this case, there is no motivation to combine.

Moreover, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also In re Fritch, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

There was no reasonable expectation of success when combining the references.

Evidence showing there was no reasonable expectation of success may support a conclusion of

nonobviousness. *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) (Claims directed

to a method for the commercial scale production of polyesters in the presence of a solvent at

superatmospheric pressure were rejected as obvious over a reference which taught the claimed

method at atmospheric pressure in view of a reference which taught the claimed process except

for the presence of a solvent. The court reversed, finding there was no reasonable expectation

that a process combining the prior art steps could be successfully scaled up in view of

unchallenged evidence showing that the prior art processes individually could not be

commercially scaled up successfully.). *See also Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927

F.2d 1200, 1207-08, 18 USPQ2d 1016, 1022-23 (Fed. Cir.), cert. denied, 502 U.S. 856 (1991) (In

the context of a biotechnology case, testimony supported the conclusion that the references did

not show that there was a reasonable expectation of success.); *In re O'Farrell*, 853 F.2d 894,

903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) (The court held the claimed method would have

been obvious over the prior art relied upon because one reference contained a detailed enabling

methodology, a suggestion to modify the prior art to produce the claimed invention, and

evidence suggesting the modification would be successful.).

Applicants have provided evidence pointing away from obviousness and in accordance

with MPEP Section 2143.01:

> If the examiner determines there is factual support for rejecting the claimed
> invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting
> the patentability of the claimed invention, such as any evidence in the specification or
> any other evidence submitted by the applicant. The ultimate determination of
> patentability is based on the entire record, by a preponderance of evidence, with due
> consideration to the persuasiveness of any arguments and any secondary evidence. In re

Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a prima facie case of obviousness) is more probable than not.

When an applicant submits evidence, whether in the specification as originally filed or in reply to a rejection, the examiner must reconsider the patentability of the claimed invention. The decision on patentability must be made based upon consideration of all the evidence, including the evidence submitted by the examiner and the evidence submitted by the applicant. A decision to make or maintain a rejection in the face of all the evidence must show that it was based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was reached, not against the conclusion itself. In re Eli Lilly & Co., 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Finally, each reference, singly or in combination, does not teach or suggest all the claim limitations in the independent claims as well as each dependent claims. Since the teaching or suggestion to make the claimed combination and the reasonable expectation of success is not found in the references, there is an inference that it came from Applicants' disclosure.

In view of the foregoing, withdrawal of the rejection of all claims is requested.

CONCLUSION

Applicants request allowance of all claims. If for any reason the Examiner believes that a

telephone conference would in any way expedite prosecution of the subject application, the

Examiner is invited to telephone the undersigned.

Respectfully submitted,

Bao Tran
Reg. No. 37,955